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Patent Claims

1. A waste heat steam generator (1) for a gas and steam power station, which has a waste heat boiler (3) to which exhaust gas (7) from a gas turbine (5) can be supplied, and which also has at least one evaporator (11, 13, 15), which is arranged in the waste heat boiler (3), in order to generate operating steam for a steam turbine,
 10 characterized in that
 the waste heat boiler (3) can be supplied with flue gas (9) from a heating device (43), a feedback line (44) is provided in order to feed back the flue gas (9), the heating device (43) is connected to a circulation
 15 circuit (50) which is formed by a heating path (52, 53) through the waste heat boiler (3) and the feedback line (44), and at least a portion of the flue gas (9) can be extracted at at least one point from the waste heat boiler (3), and can be fed back to an inlet opening (4)
 20 into the waste heat boiler (3).

2. The waste heat steam generator (1) as claimed in claim 1,
 characterized in that
 25 the waste heat steam generator (1) has at least two evaporators (11, 13, 15).

3. The waste heat steam generator (1) as claimed in claim 2,
 30 characterized in that
 the at least one portion of the flue gas (9) can be extracted from the waste heat boiler (3) upstream of at least one of the evaporators, in the direction of the flue gas (9).

- 35 4. The waste heat steam generator (1) as claimed in

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one of claims 1 to 3,
characterized in that

the at least one portion of the flue gas (9) can be extracted from the waste heat boiler (3) at or in the flow direction of the flue gas (9) downstream from its outlet opening (45).

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5. The waste heat steam generator (1) as claimed in one of claims 1 to 4, characterized in that the heating device (43) has at least one control device (37, 39, 41) for adjustment of the temperature and/or the flow rate of the flue gas (9).

6. The waste heat steam generator (1) as claimed in one of claims 1 to 5, characterized in that auxiliary steam (19) can be extracted from at least one evaporator (11, 13, 15), for operation of at least one steam consumer from the gas and steam power station.

7. The waste heat steam generator (1) as claimed in one of claims 1 to 6, characterized in that auxiliary steam (19) can be extracted from at least one evaporator (11, 13, 15) in order to heat up and/or keep hot and/or to maintain the pressure in the waste heat boiler (3), and/or can be extracted from fresh steam lines and/or from the steam turbine in the gas and steam power station.

8. The waste heat steam generator (1) as claimed in claim 6 or 7, characterized in that the auxiliary steam (19) can be extracted largely independently of the operating state of the gas turbine (5) and/or of the steam turbine.

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Patent Claims

1. A waste heat steam generator (1) for a gas and
5 steam power station, which has a waste heat boiler (3)
to which exhaust gas (7) from a gas turbine (5) can be
supplied, and which also has at least one evaporator
(11, 13, 15), which is arranged in the waste heat
10 boiler (3), in order to generate operating steam for a
steam turbine,
characterized in that
the waste heat boiler (3) can be supplied with flue gas
(9) from a heating device (43), and at least a portion
of the flue gas (9) can be extracted at at least one
15 point from the waste heat boiler (3), and can be fed
back to an inlet opening (4) into the waste heat boiler
(3).

2. The waste heat steam generator (1) as claimed in
20 claim 1,
characterized in that
a feedback line (44) is provided in order to feed back
the flue gas (9).

25 3. The waste heat steam generator (1) as claimed in
claim 2,
characterized in that
the heating device (43) is connected in a circulation
circuit (50), which is formed by a heating path (52,
30 53) through the waste heat boiler (3) and the feedback
line (44).

4. The waste heat steam generator (1) as claimed in
claim 2,
35 characterized in that
the heating device (43) is connected to a circulation
circuit (50) which is formed by a heating path (52, 53)

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through the waste heat boiler (3) and the feedback line
(44).

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5. The waste heat steam generator (1) as claimed in one of claims 1 to 4, characterized in that the waste heat steam generator (1) has at least two
5 evaporators (11, 13, 15).

6. The waste heat steam generator (1) as claimed in claim 5, characterized in that
10 the at least one portion of the flue gas (9) can be extracted from the waste heat boiler (3) upstream of at least one of the evaporators, in the direction of the flue gas (9).

15 7. The waste heat steam generator (1) as claimed in one of claims 1 to 6, characterized in that the at least one portion of the flue gas (9) can be extracted from the waste heat boiler (3) at or in the
20 flow direction of the flue gas (9) downstream from its outlet opening (45).

8. The waste heat steam generator (1) as claimed in one of claims 1 to 7,
25 characterized in that the heating device (43) has at least one control device (37, 39, 41) for adjustment of the temperature and/or the flow rate of the flue gas (9).

30 9. The waste heat steam generator (1) as claimed in one of claims 1 to 8, characterized in that auxiliary steam (19) can be extracted from at least one evaporator (11, 13, 15), for operation of at least one
35 steam consumer from the gas and steam power station.

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10. The waste heat steam generator (1) as claimed in
one of claims 1 to 9,
characterized in that
auxiliary steam (19) can be extracted from at least one
5 evaporator (11, 13, 15) in order to heat

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up and/or keep hot and/or to maintain the pressure in the waste heat boiler (3), and/or can be extracted from fresh steam lines and/or from the steam turbine in the gas and steam power station.

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11. The waste heat steam generator (1) as claimed in claim 9 or 10, characterized in that

10 the auxiliary steam (19) can be extracted largely independently of the operating state of the gas turbine (5) and/or of the steam turbine.

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